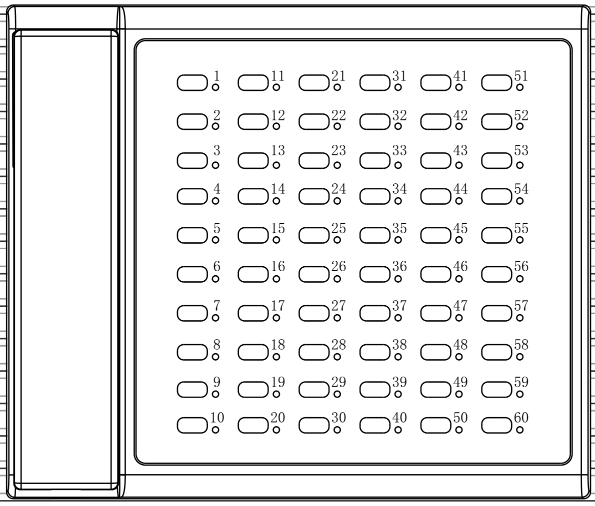
使用说明书
Operating Instructions

附保证书 Attached Guarantee

电梯对讲机说明书
Elevator Intercom's Manual

NKT12(1-1)



■非常感谢您购买使用本产品.
■使用前请详阅本说明书.
■说明书请妥为保管

Many thanks for your purchase of products.
Before use,please read these instructions thoroughly.
Please keep these instructions properly.

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一、前言 Preface

1.1在安装使用专用对讲机前，请详细阅读此操作说明书，并保留它作以后参考。
Before installation and using the elevator intercom. Please read this operating manual and hold for future reference.

1.2电梯专用对讲系统讲在电梯应急或检修被运用，副机安装在每一个轿厢操箱内、轿顶和井底，主机安装在机房控制柜壁、监视室。
Elevator intercom system will be applied to elevator emergency or overhauling, the auxiliary intercom is installed inside each of the carriage control box, in car-top and well bottom, and master intercom is in the machine room to control the cabinet wall and monitor room.

1.3此对讲系统特点：噪声小、衰减少、声音响亮。此对讲机系统可实现多方对讲。
This intercom features low noise, little attenuation and loud sound. Furthermore, this intercom can implement multi-party calling.

1.4对讲系统标准配置为分线制系统，总线制方式作为选项配置，以适应大型小区使用！（13页）
The branching system is the standard configuration. The bus-organization as the optionsconfiguration applies to the large scale housing estate.(P13)

二、操作 Operation

2.1从轿厢副机对主机呼叫，按轿厢操纵板上电话紧急呼叫按钮，主机蜂鸣响，拿起话筒即可与轿厢对讲;轿顶、底坑副机对主机呼叫，按呼叫按钮，主机蜂鸣响，拿起话筒即可与副机对讲。
If carriage auxiliary intercom calls the master intercom, press the Emergency Call button on carriage control panel, then the buzzer of master intercom makes noise, then pick up the headphone to communicate with carriage. If the auxiliary intercom in car-top or well bottom calls the master intercom, press the Call button, buzzer of master intercom rings. Pick up the headphone and communicate.

2.2对讲主机对轿厢对讲拿起话筒即可与电梯轿厢对讲。此时对讲状态指示灯亮（红色）。主机对轿顶、底坑副机对讲，拿起话筒即可与副机对讲。
Pick up the headphone to make a call from master intercom to auxiliary intercom of elevator carriage. At the time, the status of the indicative light is on (in red). The same to the auxiliary intercom in car-top or well buttom.

2.3主机间互叫时，拿起听筒按主机呼叫键，其他主机蜂鸣响并亮指示灯，拿起听筒即可对讲。
When making calls among master intercoms, pick up headphone and press the master intercom Call button, the buzzers of the master intercoms make sound and the indicative lights light, then pick up the headphone to make calls.

2.4按住免提主机“通话键”不放，为通话状态，按住“呼叫键”为主机互叫。
Communicate by holding the "Speaking button" of hand-free master intercom and make calls among master intercoms by holding the Call button.

三、主要参数 Parameters

3.1工作电压 Working voltage：DC 12V
3.2响铃声级 Ring level:≥60dB
3.3最大功耗 Maximum power dissipation:2W
3.4通话距离 Call distance:≤3000M
3.5噪音电压 Noise voltage:≤10MV

四、使用条件 Working Conditions

4.1环境温度 Environment temperature:-40℃≥∽60℃
4.2相对湿度 Relative humidity:30%∽95%
4.3环境噪音 Environment noise:60 dB
4.4布线数 Number of wiring: 4-core normal cable with 0.75mm^{2}diameters

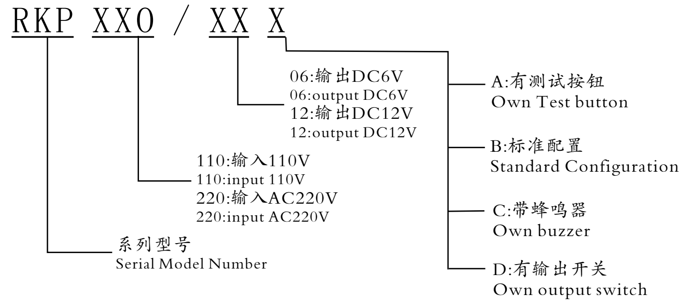
五、电源

本应急报警、对讲系统都用DC12V电源，对讲机工作电源的“正”，“负”端接于主机的"+"，"-"接线端子或副机的"+"，"-"接线端子。

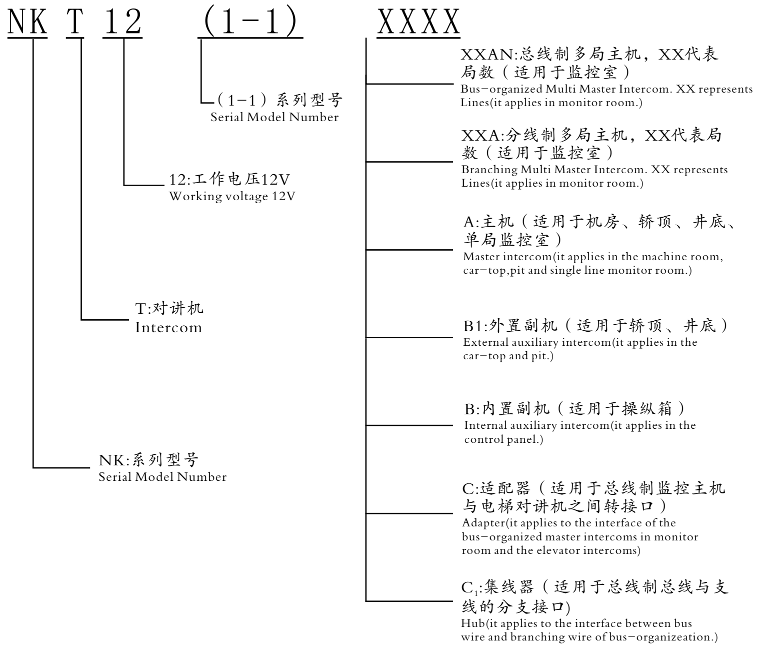
The emergency alarm and intercom system use the DC12V power supply. The "positive" and "Negative" terminal blocks of intercom working power connect to the "+" wring terminal of master intercom and "+""-" wiring terminal of the auxiliary intercom.

六、各部件型号规定说明

6.1 应急电源型号命名规则
The Model Number Naming Rule of Emergency Power Supply

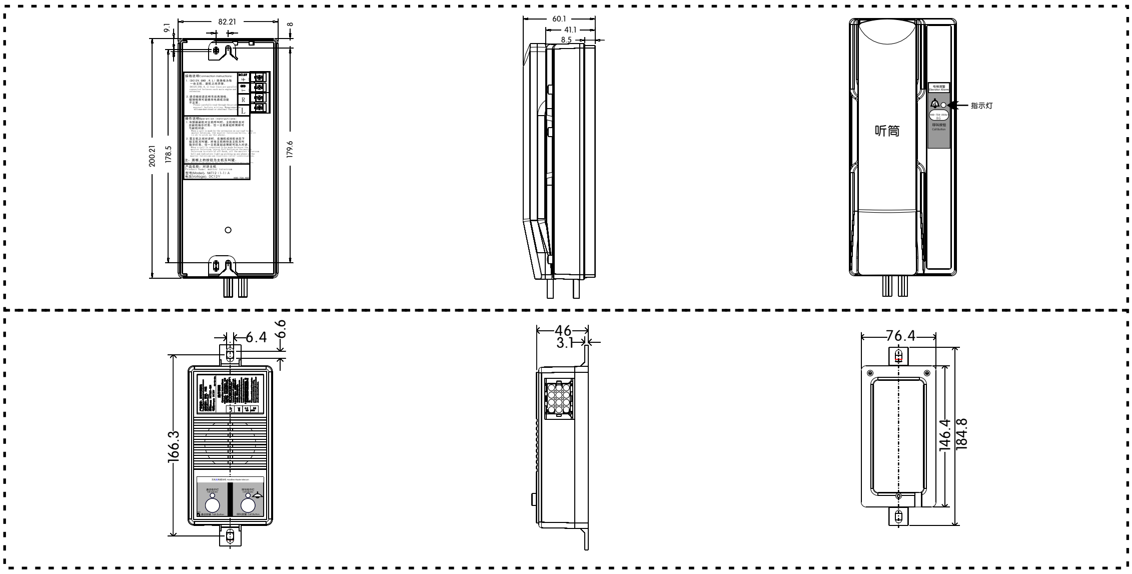


6.2 对讲机型号命名规则
The Model Number Naming Rule of Intercom

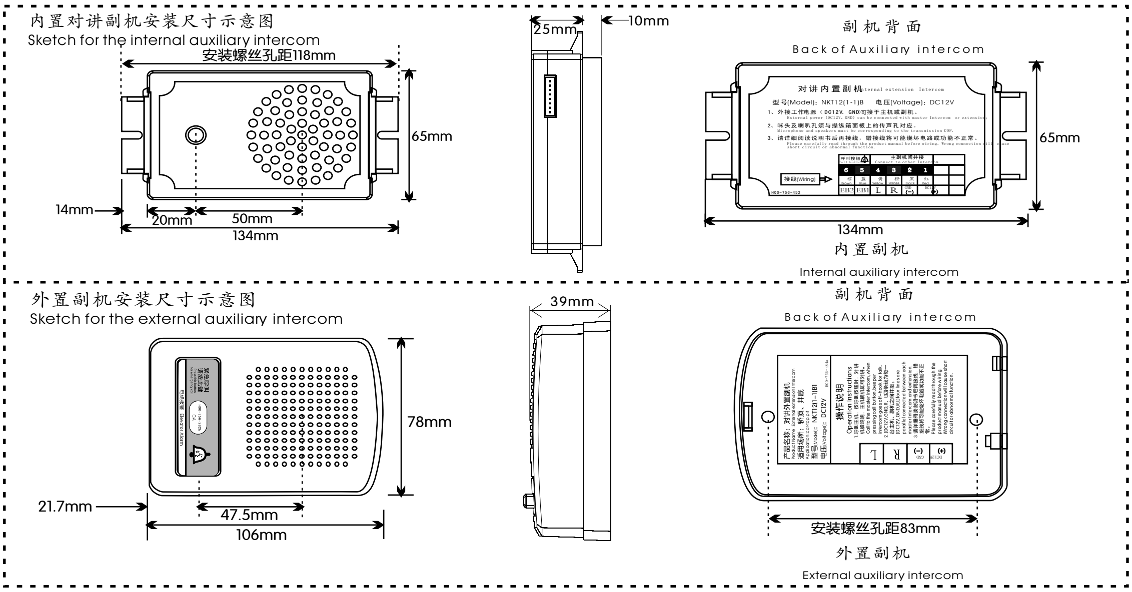


七、各部件及其系统安装说明 Installing Descriptions

7.1控制柜侧壁钻上下相距178.5mm，ф4mm*2的安装孔；将螺栓固定，再将主机挂在螺栓上。
Drill two installing holes of ɸmm with distance of 178.5mm inside wall of control cabinet. Hold the bolton, then hand the master intercom in bolt.



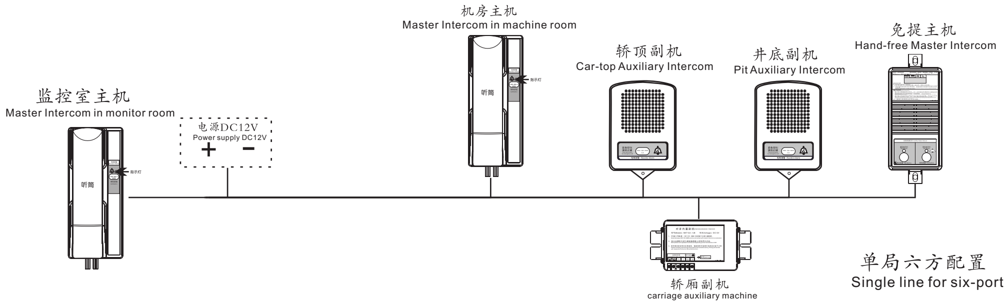
7.2 COP中，把对讲副机安装于轿厢操纵箱内，安装时要预留“麦克风、扬声器”声音的传送孔。
7.2 Install the internal auxiliary intercom to the carriage control box in COP, and preserve transferringholes for the speaker and MIC.



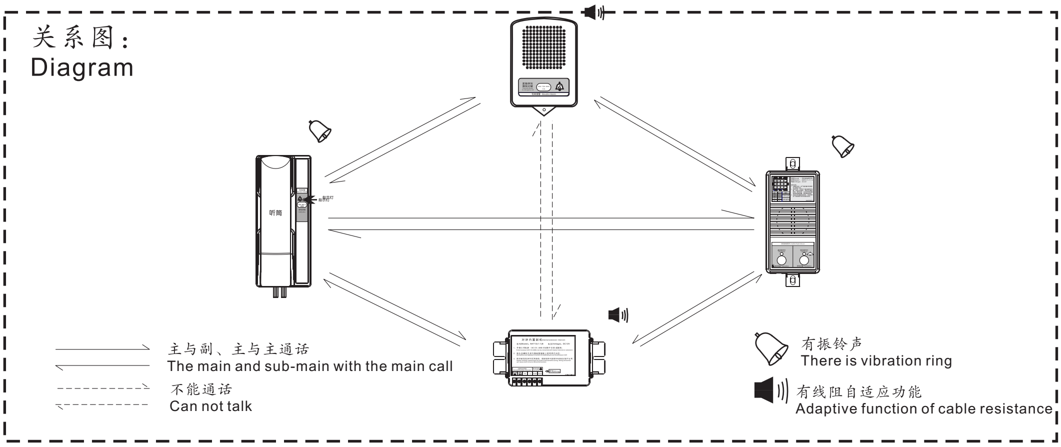
7.3按图，把从机房对讲主机与COP副机接线后，以及EB1、EB2的紧急呼叫按钮接线；
7.3Connect wires between the master intercoms in machine room and auxiliary intercom in COP according to the picture above. EB1 and EB2 are connected with Call buttons.

7.4按COP紧急呼叫按钮以进行测试，检查对讲是否良好。如果有“嗡嗡”等不正常情况，应检查扬声器和麦克风传声口是否有封住的现象。

7.4Press the Emergency Call button of the master intercom in COP for checking. If there is "hum-hum" sound, please check the speaker and MIC sound-transfer port are blocked.

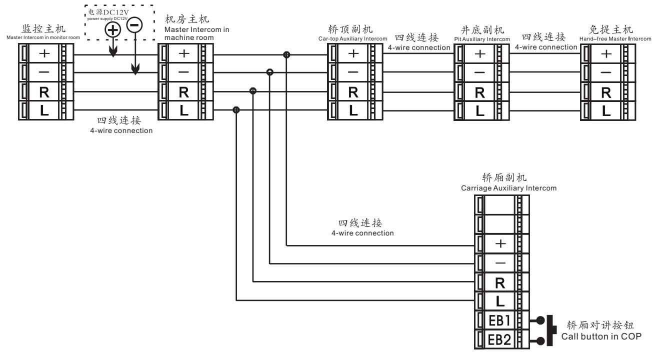


单局六方配置
Single line for six-port

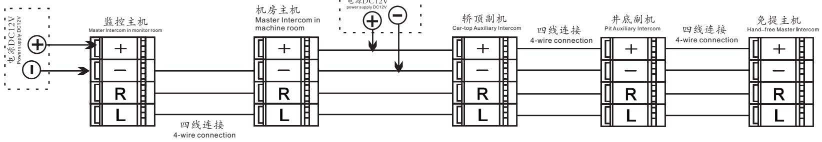


7.5.1单局系统接线图 Wiring diagram of single Line system

单局单电源接法：
Wiring of single Line single power supply

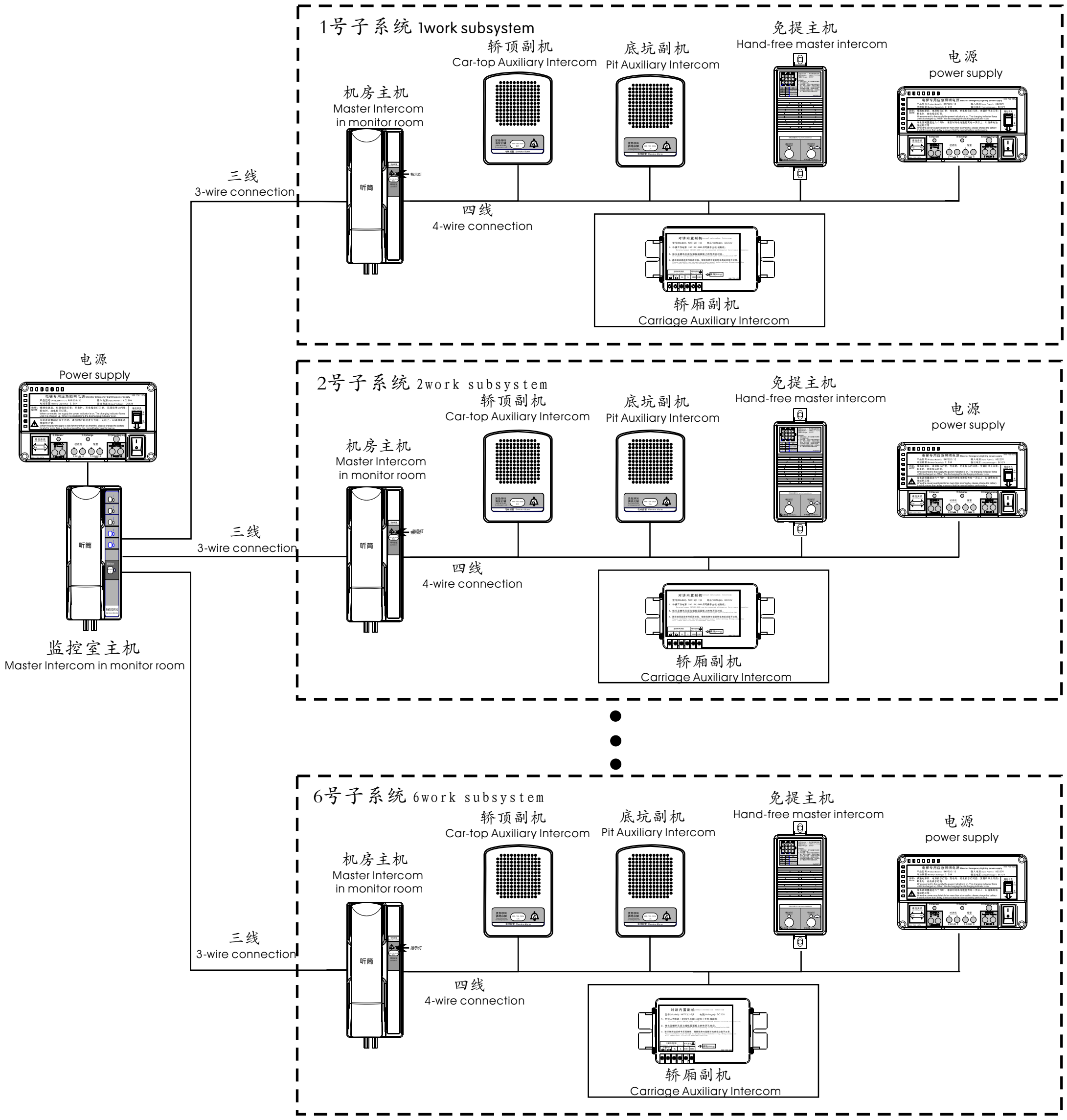


单局双电源接法：
Wiring of single Line double power supply



7.6 分线制多局系统 Branching Multi Elevator System

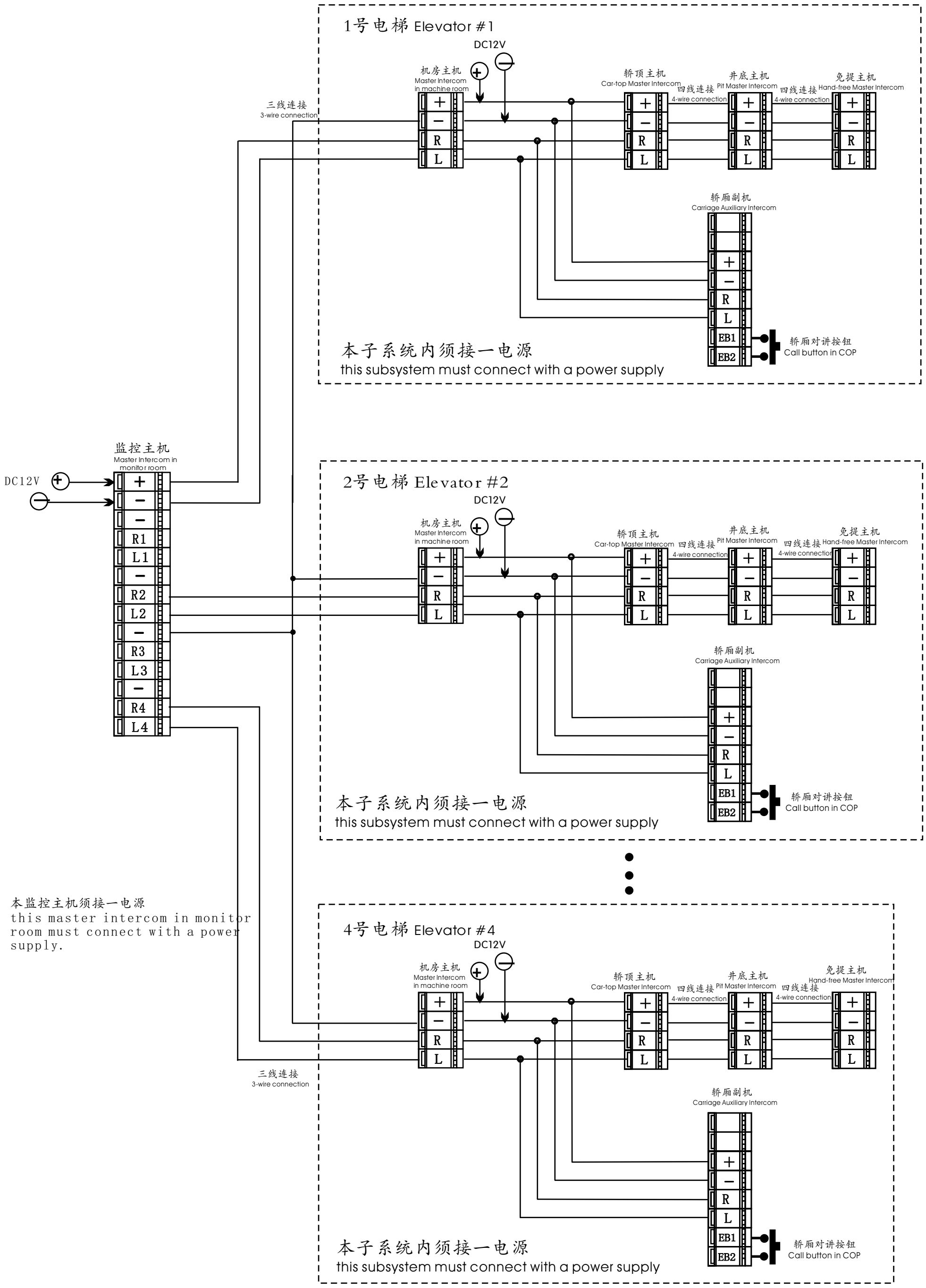
7.6.1分线制多局系统示意图 Sketch for Branching Multi Elevator System



7.6.2 子系统与监控室选用线材与距离的关系 Introduction and distribute of wires:

导线面积 Wire Area	0.3mm²	0.5mm²	0.75mm²
通话距离 Call distance	≤1000m	≤2000m	≤3000m

7.6.3分线制多局系统接线图 Wiring Diagram of Branching Multi Elevator System



7.6.4 分线制多局系统接线说明 Instructions

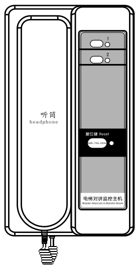
图中“–”是公共端，所有子系统的“–”可以并接.允许监控室的“–”与子系统“–”用一根=线连接。

"-"is the public terminal of the system, the "-"between each subsystem can be connected in parallel. Allow connecting the"-"in monitor room with the "-" of subsystem with wire.

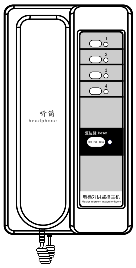
八、分线制多局系统监控室主机种类及其说明 Branching Multi master intercom system in monitor room

8.1以下2局~22局采用塑胶外壳，32局~64局为铁壳。

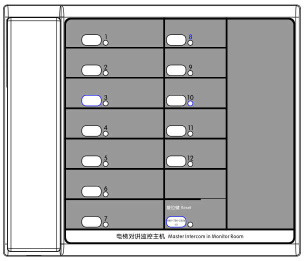
2lines-22lines use the plastic box, and 32lines-64lines use the iron box



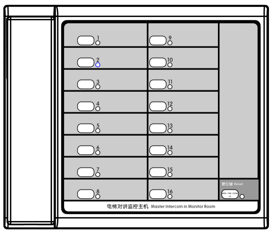
2局对讲主机
2Lines Master Intercom



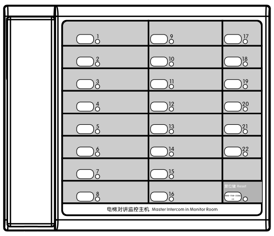
4局对讲主机
4Lines Master Intercom



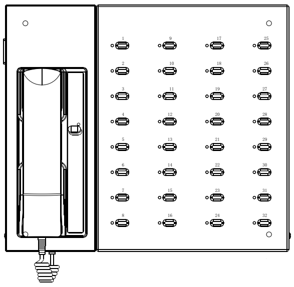
12局对讲主机
12Lines Master Intercom



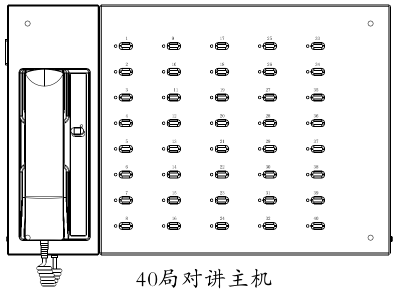
16局对讲主机
16Lines Master Intercom



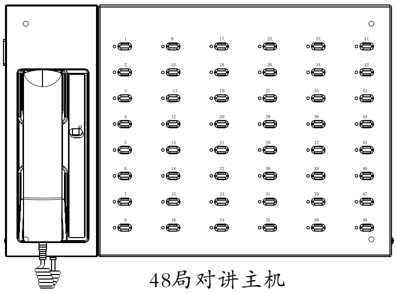
22局对讲主机
22Lines Master Intercom



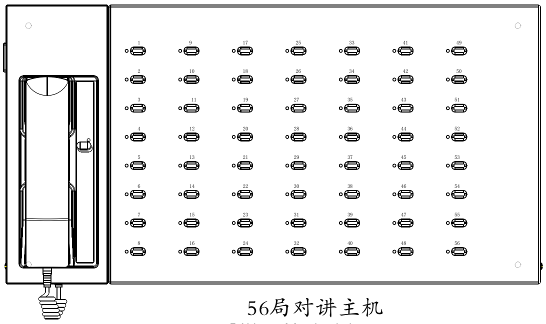
32局对讲主机
32Lines Master Intercom



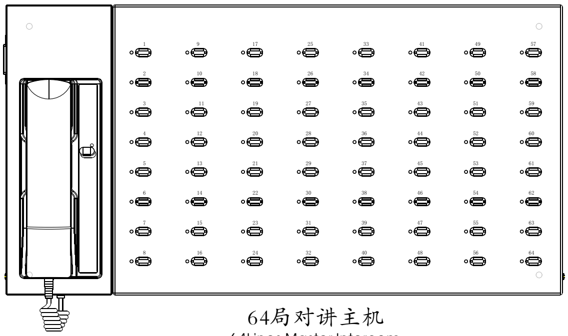
40局对讲主机
40Lines Master Intercom



48局对讲主机
48Lines Master Intercom

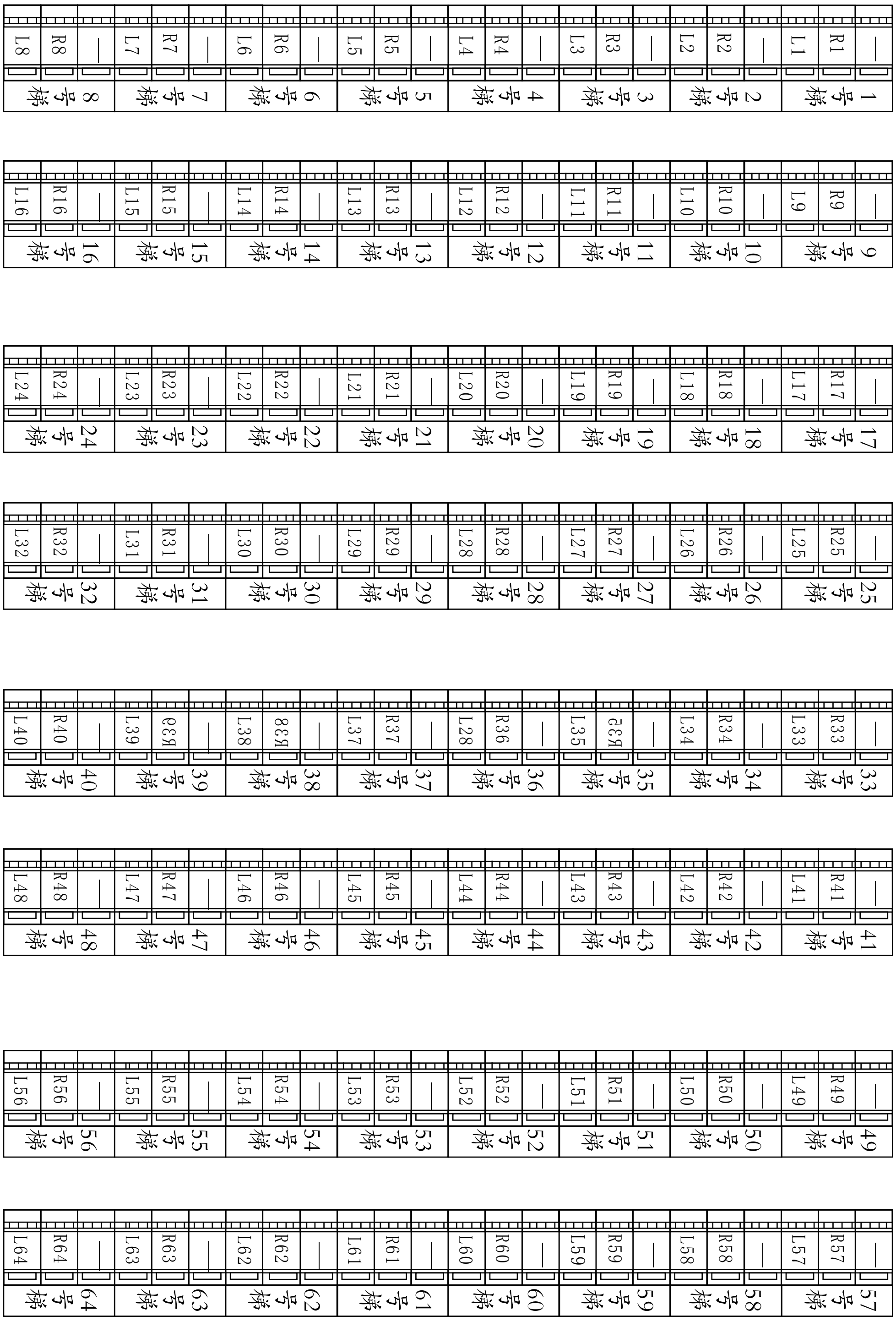


56局对讲主机
56Lines Master Intercom



64局对讲主机
64Lines Master Intercom

8.2 多局线控主机接线端子 Wiring Terminal of Multi Control-by-wire Master Intercom



附A:总线制扩展

Attached A: The Extension of Bus-organization

在前述分线制对讲机系统基础上，在电梯范围对讲系统不变的情况下，通过增加解码器等装置，在小区监控布线方面，可直接扩展为**五线制总线方式**。

Based on the original foundation of the branching intercom system and remains the range unchanged,we can extend the monitoring wiring of the housing estate to become a 5 Lines Bus-organization by equipping the decoder and other equipments.

A.1.0 应用范围 Applied Range

总线制扩展适用于大型楼盘电梯紧急对讲系统，监控主机[NKT12（1−1）XXAN]可实现59个子系统通讯管理。类似于分线制监控总机的排版，型号如下：

The extension of bus-organization adapts to the large scale building Emergency Elevator System.The master intercom[NKT12(1-1)XXAN] in monitor room can implement the communication control between 59 subsystems.The model Numbers being similar to the branching bus intercom in monitoroom list as follows:

7~16局采用：NKT12（1-1）16AN

The 7-16 Lines adopt:NKT12(1-1)16AN

17~22局采用：NKT12（1-1）22AN

The 17-22 Lines adopt:NKT12(1-1)22AN

23~39局采用：NKT12（1-1）39AN

The 23-39 Lines adopt:NKT12(1-1)39AN

40~59局采用：NKT12（1-1）59AN

The 40-59 Lines adopt:NKT12(1-1)59AN

注:每台电梯为一个子系统，子系统由机房主机、轿顶主机(或副机)，底坑主机 (或副机)免提主机（消防基站用）自由组成（详见分线制方式）。

Note: Each elevator is a subsystem.Subsystem is made of master intercom in machine room,master or auxiliary intercom in car-top,master or auxiliary intercom in pit and the hand-free master intercom in fire station. (See the branching way for details.)

A.1.1 监控机的电源配置：The power supply configuration of intercom in monitor room.

a.监控机的电源要独立配置，即是电源的输出只给监控机使用，选择质量好和输出电流大的电源，是整个系统稳定的保证，德凌公司生产的电梯专用应急电源是一个不错的选择。

The power supply of intercom in monitor room should configure independently, namely the output of power supply only provide to the intercom in monitor room.Choosing a power supply with high-quiality and large outputelectricity current can steady the overall system. The emergency lighting power supply made in DeRin Electronic Company is a pretty good choice.

b.输出电压：直流12伏

Output voltage: Direct Current 12V

输出电流：大于1A

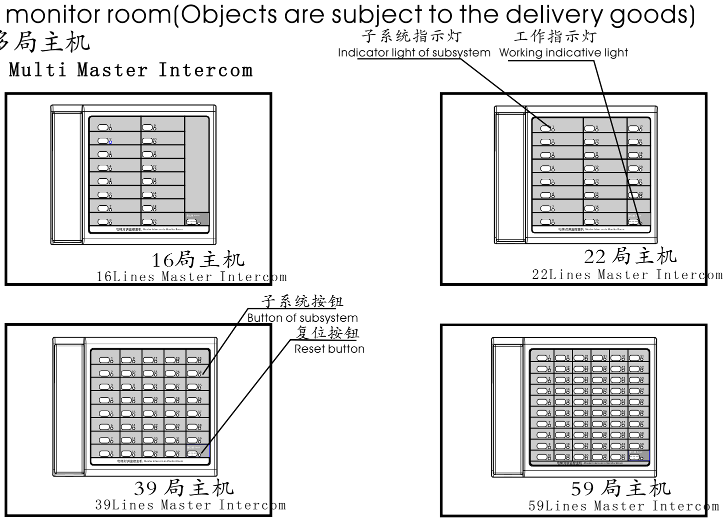
Output current: more than 1A

A.1.2 监控主机的种类（实物以供货为准）

Sorts of the master intercom in monitor room(Objects are subject to the delivery goods)

总线制多局主机

Bus-organized Multi Master Intercom



A.1.3监控机的使用（读一下是有必要的）

The use of Intercom in monitor room(It's necessary to read it)

a.挂机时，所有子系统指示灯熄灭，工作指示灯亮，监控机已经进入挂机状态，如果有子系统呼入，监控机振铃30秒，同时对应的子系统指示灯亮并保持。

When hanging up, all the subsystem indicative lights turn off and the working indicative lights light,then the status of intercom turns on-hook. If the subsystem calls the master intercom, the intercom in monitor room will ring for 30seconds. At the same time, the corresponding indicative light of subsystem will keep lighting.

b.复位按钮和工作指示灯设置在面板的右下角，每按一次复位按钮都会使得监控机内部的微机的回到挂机状态，并且发出蜂鸣声。

The Reset button and working indicative light are set in lower right corner of the panel. The microprocessor in monitor room turns on-hook. Each time you press the Reset button, and the buzzer rings at the same time.

c.呼出时，摘机，按一下n号呼叫按钮，n号指示灯亮并闪烁，表示与子系统连接成功，可以对讲，如果呼叫后超过1秒n号指示灯不亮或蜂鸣报警，则表示连接失败（原因请对照故障与排除）。

When calling out, pick up the headphone and press the No.n Call button. If the indicative light of No.n subsystem is on and brights, it means connecting successfully and it's OK to communicate. If 1 second later, the indicative light of No.n subsystem still isn't on or the alarm buzzer rings, then it fails to connect. (Please contrast the troubleshooting.)

故障与排除 Troubleshooting	
故障表现 Expressions	故障原因及排除 Reasons and Resolvents
1.蜂鸣长响 The buzzer rings for long time.	监控机电源失效，或电压低于12伏 The power supply of master intercom lose effectiveness or the voltage is below 12V
2.工作指示灯不亮 The working indicative light doesn't light	未接电源，检查电源 Fail to connect to the power supply, please check it.
3.蜂鸣断续响 The buzzer rings intermittently.	总线短路，检查总线 The bus is short, please check it.
4.呼叫n号，n号指示灯不闪烁 When calling the No.n subsystem, the indicative light doesn't bright.	N号子系统故障或未接有n号子系统 The No.n subsystem breaks down or is unconnected.
5.蜂鸣器和振铃声交替出现，工作指示灯不亮 The buzzer and vibrate ringing voice rings alternately.The working indicative light is off.	监控机电源失效内阻大供电不足或总线短路，更换电源和检查总线 The power supply lose effective,the essential resistance is large, the electricity is shortage,or the bus is short.Please change the power supply and check the bus.
6.呼叫n号，n号指示灯亮，并且显示其它的指示灯。 When calling the No.n subsystem, Its indicative light is off, but other iudicative light bright.	本系统有两个或以上相同地址码的解码器。 The system at least has two decoder with the same address code.

A.2总线制扩展所需设备—解码器：

The necessary equipment—Decoder

解码器是总线与子系统之间通讯的桥梁，其安装的质量会直接影响整个总线系统的正常使用。（安装前一定要对A. 2. 1——A. 2. 7的所有描述理解透彻，对后面的接线示意图阅读和理解是很有帮助的）

Decoder is the bridge of communication between the bus and subsystems. The installation quality will directly influence the normal use of the overall bus system.(Before installation, please understand all the description from A.2.1—A.2.7 thoroughly. It's pretty helpful to read and understand the following wiring diagram.)

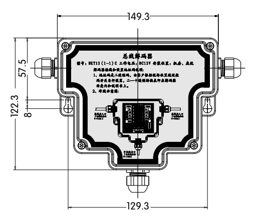
A.2.1解码器的配置电源主要参数（可以与子系统共用一个电源）：

Parameters of the Decoder power supply(It can connect to the public power supply with subsystems)

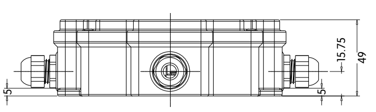
电压: 直流12伏　　电流：大于500毫安（电流充沛是系统稳定的关键）

Voltage: Direct current 12V　Current: more than 500mA(Enough current is the key to steady the system)

A.2.2解码器的安装尺寸 Installation size of decoder：



解码器
Decoder



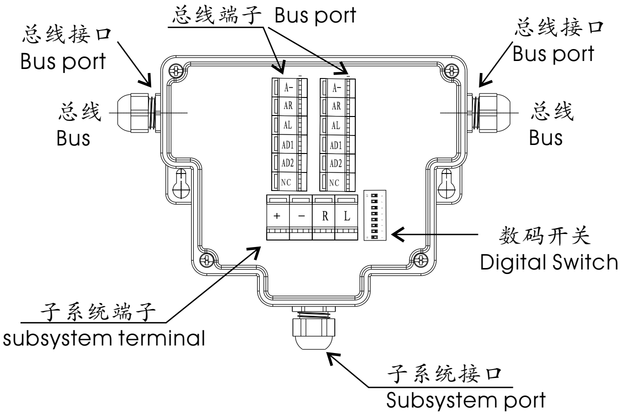
建议把解码器安装在维护方便，避免有水浸泡的地方，固定在坚固的墙壁或固定物件上。

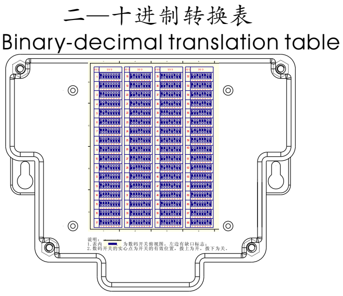
Suggest to install the decoder where is convenient to protect and away from the soaking water.And it should be set on the solid wall or fixer.

A.2.3 解码器的接线原理 The Wiring theory of Decoder

A.2.3.1 解码器内部接线端子的认识:

Knowledge of the internal wiring terminal of decoder

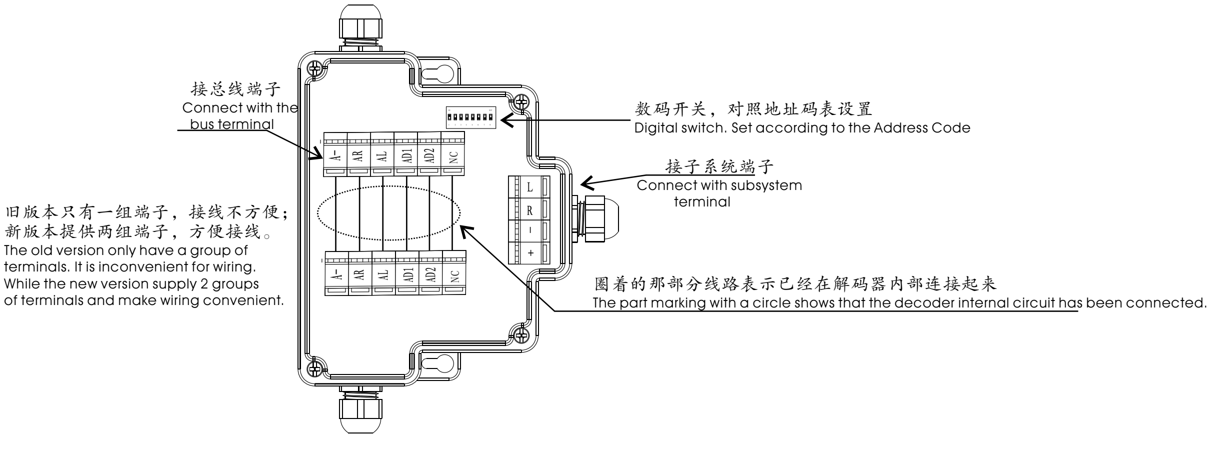




A.2.3.2解码器内部接线端子的连接: Connections between the internal wiring terminal of decoder

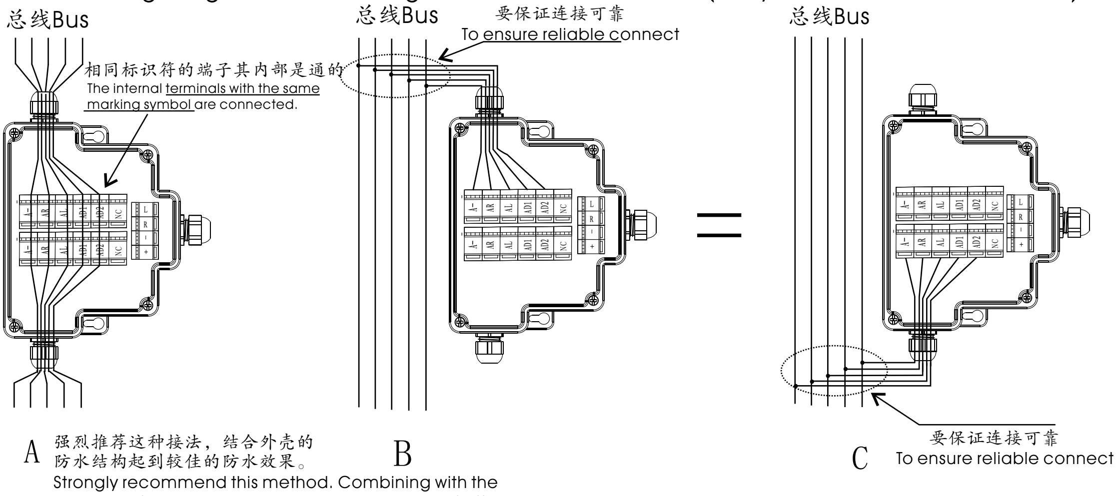
这点内容只是让用户了解一下解码器接线端子的内部连接情况，相同标识符号 端子其实已经是连接起来的。

This content just let users understand the internal connection of the decoder terminal. The same marking symbol shows that terminals actually are connected .



A.2.3.3 解码器连接到总线上的三种接法示意图（它们的功能是一样的）:

3kinds of wiring diagram connecting the decoder to the bus(They have the same function):



A 强烈推荐这种接法，结合外壳的防水结构起到较佳的防水效果。
Strongly recommend this method. Combining with the waterproof structure crust plays better waterproof effect.

B

C

★解码器接线和设置地址码说明（如上图）Explanation of the decoder wiring and Address Code Setting

A.2.4解码器具有防水功能，为了达到防水效果，所有接入解码器的电缆必须穿过防水接头螺母，而且电缆外表保护层完好无破损，接入的电缆保护层长度要保留10cm；

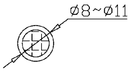
Decoder features the waterproof function. In order to achieve the waterproof effect, all the cables connected with decoder must go through the waterproof collar nut. The covering layer of the cable appearance remains intact. The length of cable covering layer should remain 10 cm.

A.2.5地址码是二进制码，由客户根据现场位置通过数码开关自行设置，二—十进制转换表，印在解码器面壳内。

The address code is the binary code. Customers set it according to the site position by digital switch. The binary-decimal translation table is printed on the face-piece of decoder.

A.2.6电缆线外径应在8-11mm范围内

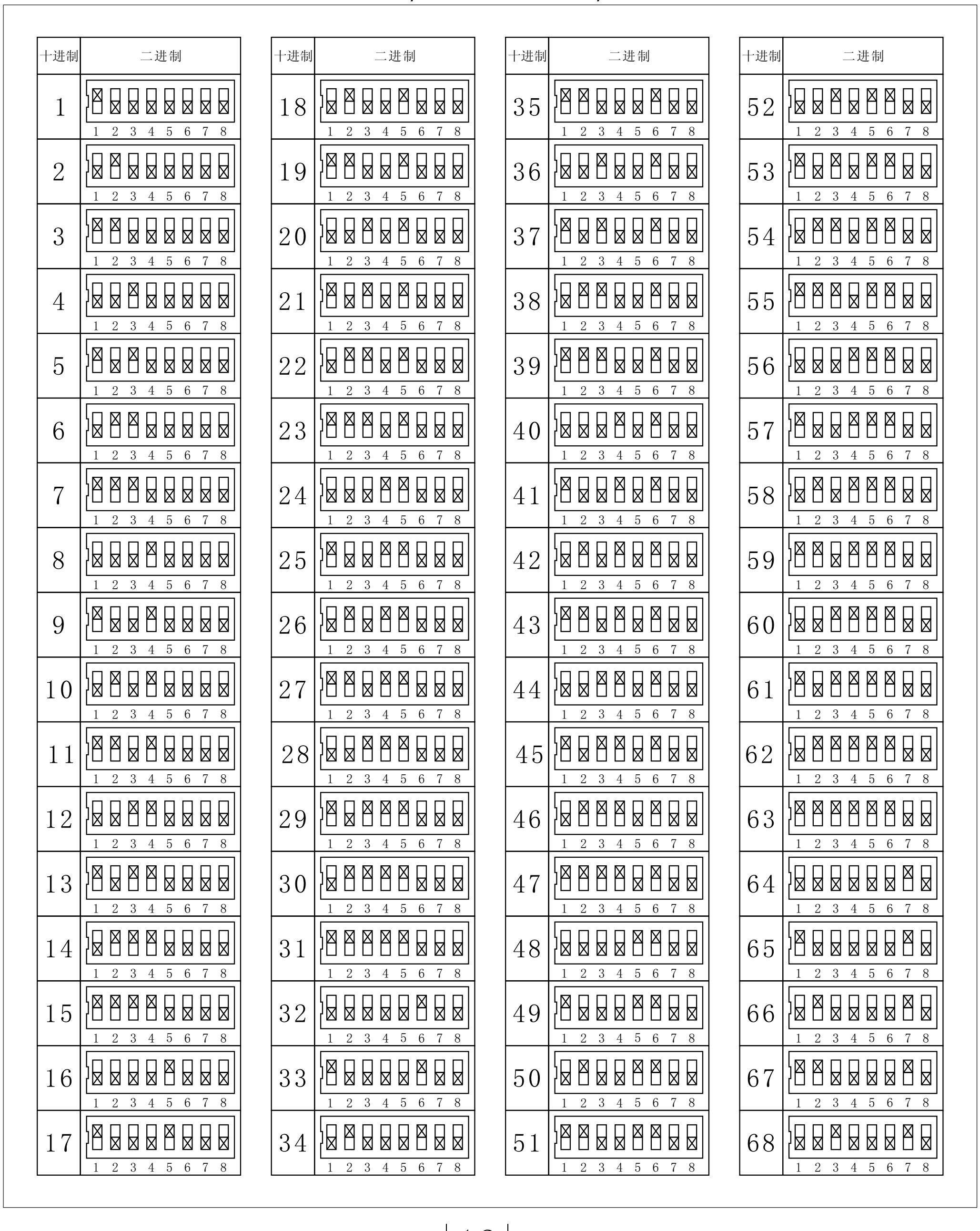
The cable diameter should be in the range of 8-11 mm.



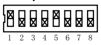
A.2.7地址码对照表 Address code Comparison Table

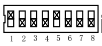
二进制转换十进制

Binary into Decimal System



说明：Explanation

1.表内为数码开关俯视图，左边有缺口标志；

The in table is the top view of digital switch. There is a gap symbol on the left.

2.数码开关的实心点为开关的有效位置，拨上为开，拨下为关。

The solid point of digital switch is the effective position. Turn up to open, turn down to shut down.

A.3 总线制对讲机的安装说明（请仔细阅读） Installing Instructions(Please read carefully)

A.3.1电缆选材要求：Requirements of cable material selections

1、要求使用国标线，使用多种颜色的多芯电缆，同一个工程项目使用同一个批次的，点到点之间的总线应该是整段电缆线,中间不应该有驳接、破皮、分支的情况出现；要分支时，最好使用集线器连接。

Require that use the chinese standard polycore cable with multicolour.Each project item must use the same batch cable The point-to-point bus should be a complete cable. Among it, overlapconnections, skin breaking and branch can not happen. If branch is needed, You'd better use the hub.

2、总线电缆选用6芯电缆，外径应在8-11mm范围内，线芯要0.75mm^2或以上，规定线芯颜色分别是红、黑、橙、黄、棕、兰，还规定了红色线接NC端子，黑色线接A-端子，橙色线接AR端子，黄色线接AL端子，棕色线接AD_1端子，兰色线接AD_2端子。

The bus cable choose the 6-core cable. Diameter is in the range of 8-11mm. The copper core of conductor should beover or equal to 0.75mm^2.Set 6 colours of core of conductor,that are red,black,orange,yellow, brown and blue wires.And set that red wire connect with terminal of NC, black wire connect with terminal of A-,ornage wire connect with terminal of AR,brown wire connect with minal of AD_1,and blue wire connect with terminal of AD_2.

3、子系统电缆选用4芯电缆，外径应在8-11mm范围内，线铜芯要0.75mm^2或以上，规定线芯颜色分别是红、黑、橙、黄，还规定了红色线接+端子，黑色线接-端子，橙色线接R端子，黄色线接L端子。

The subsystem cable choose the 4-core cable. Diameter is in the range of 8-11mm. The copper core of conductor should be over or equal to 0.75mm^2.Set 4 colours of core of conductor,that are red,black,orange and yellow, wires. And set that red wire connect with terminal of +, black wire connect with terminal of -, ornage wire connect with terminal of R,andyellow wire connect with terminal of L.

4、这一步也很重要！就是把所有的子系统先安装并且调试好。

This step is also very important. It is said to install all the subsystem first and then to debug them. Please refer to page3 for details.

A.3.2 一切准备妥当后，总线部分采用边安装边调试的方法，具体如下：

When all are ready, debugg the bus-organized part while installing. Specific method shows as follows:

1、安装监控主机：安装在值班人员容易操作的地方，要配一个12V专用电源，并把电源上的对讲机端子通过连接线（线芯≥0.75mm^2）连接到监控机上+、-的接线端子，标号A-、AR、AL、AD1、Ad2是监控机与总线连接的端子。

Install the master intercom in monitor room: Install where is easy to operate for the operator on duty. Supply a 12V specific power supply, and connect the intercom terminal of power supply to the "+","-" wiring terminals of master intercom in monitor room by an connecting wire with the core diameter over 0.75mm^2. Label A-,AR, AL,AD1,AD2 is the terminal between the monitor intercom and bus wire.

2、安装解码器（常用原则总是先选择离监控主机最近的那个解码器来安装）：

Install the decoder.(The common principle is that firstly install the nearest decoder of master intercom in monitor room.)

a.总线有分支的，选择支路短的、容易做的先完成，之后再做下一支路，这样做起来思路清晰。

The bus wire has branches. It is clearly-thought that firstly complete easy doing, short branch bus wire. Then handle the next.

b.按照“原则”来选择安装解码器，把解码器安装在维护方便，避免有水浸泡的地方，固定在坚固的墙壁或固定物件上，并且以三个穿线孔以“T”字型放置；

Install where is convenient to protect and away from the soaking water according to the principles. Hold on the solid wall or fixer and the three wiring holes place as a "T"word.

c.解码器两侧为总线穿线孔，电路板上已提供两组总线的接线端子，标识符为A-、AR、AL、AD1、AD2,同等标识符同等使用；下侧端子为连接电梯子系统对讲机，标识符号+、-、R、L与电梯内部对讲机同等标识符连接。

The bus wiring holes are attached to the decoder at both sides. It has two groups of bus wiring terminal in circuit panel. The identifiers are A-,AR,AL,AD1,AD2. Equal identifiers used equally. The underside terminal connect with the elevator subsystem intercom.

d.调试时，先不接通往下一个解码器的总线，对 照 解码器 面壳 内部的二进制转十进制转换表通过数码开关设置本机地址码，之后给解码器通电，地址码设置才能生效，测试正常后才能把下一个解码器的总线连接上，安装调试下一个解码器，重复以上的工序直到把最远的一个解码器安装完毕为止。切记不要先把整个总线系统连接起来再调试！

Firstly don't connect the bus to the next decoder when debugging. Set the local address code by the digital switch according to the binder translation table inside the decoder shell. Then elect to the decoder, the setting of the address code just comes into force. Connect the bus to the next decoder unless it is tested well. Then install and debug the next decoders repeating the process above. Remember, don't connect the bus of overall system before debugging!

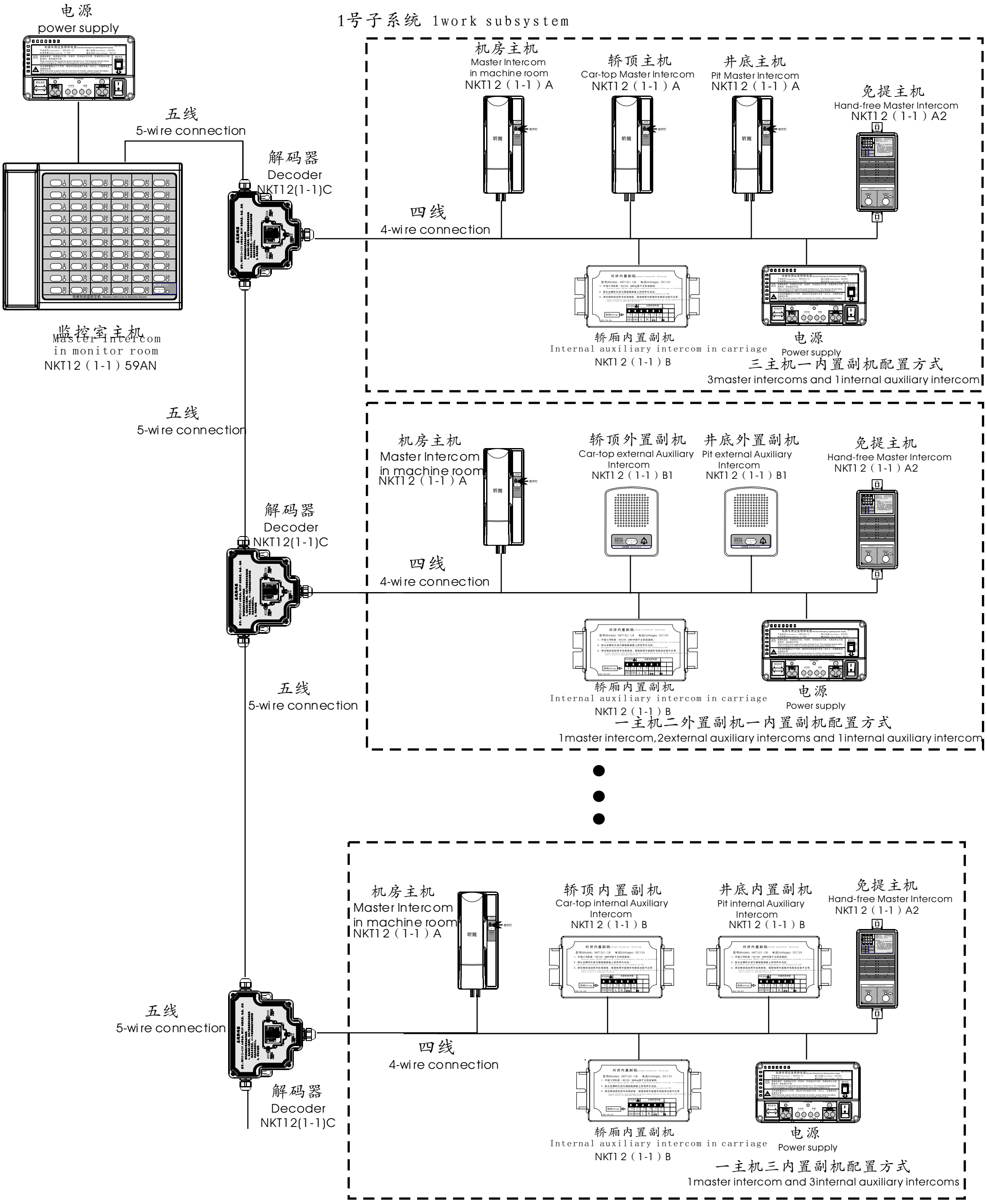
3、集线器是选配部件，集线器是总线分支时要使用的，外观和解码器一样，内部提供了三组接线端子，相同标识符端子是通的（示意图略），把集线器安装在维护方便，避免有水浸泡的地方，固定在坚固的物件上，三个穿线孔都是总线连接线的出入口。

Hub is the optional components, which is used when the bus branches. Appearance is the same with decoder. Internal provides three groups of wiring terminals. Each terminal with the same identifier is connected (Omitting the diagram) . Install hubs where is convenient to protect and away from the soaking water. Hold on the solid wall. The three wiring holes are all the gateway of bus connecting wire.

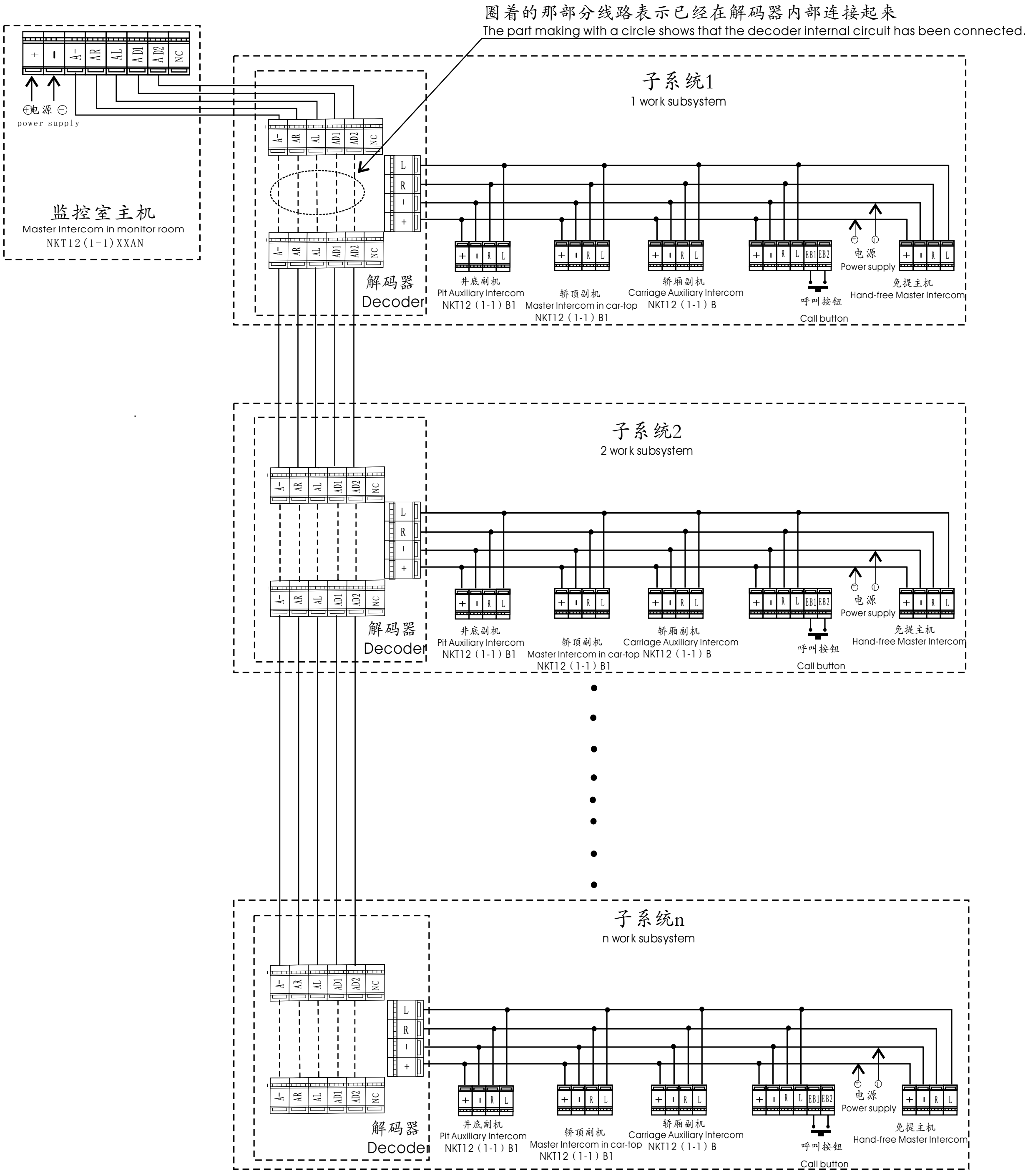
A.4 总线制对讲机的布局和接线示意图 Sketch for the Bus-organized Intercom

A.4.1.1总线制典型布局示意图一（实物以供货为准），对照下一页接线图更容易理解

A.4.1.1 Sketch for the typical layout of Bus-organized Intercom(1) (Objects are subject to the delivery goods)
It's easier understanding contrasting to the wiring diagram on the next page.

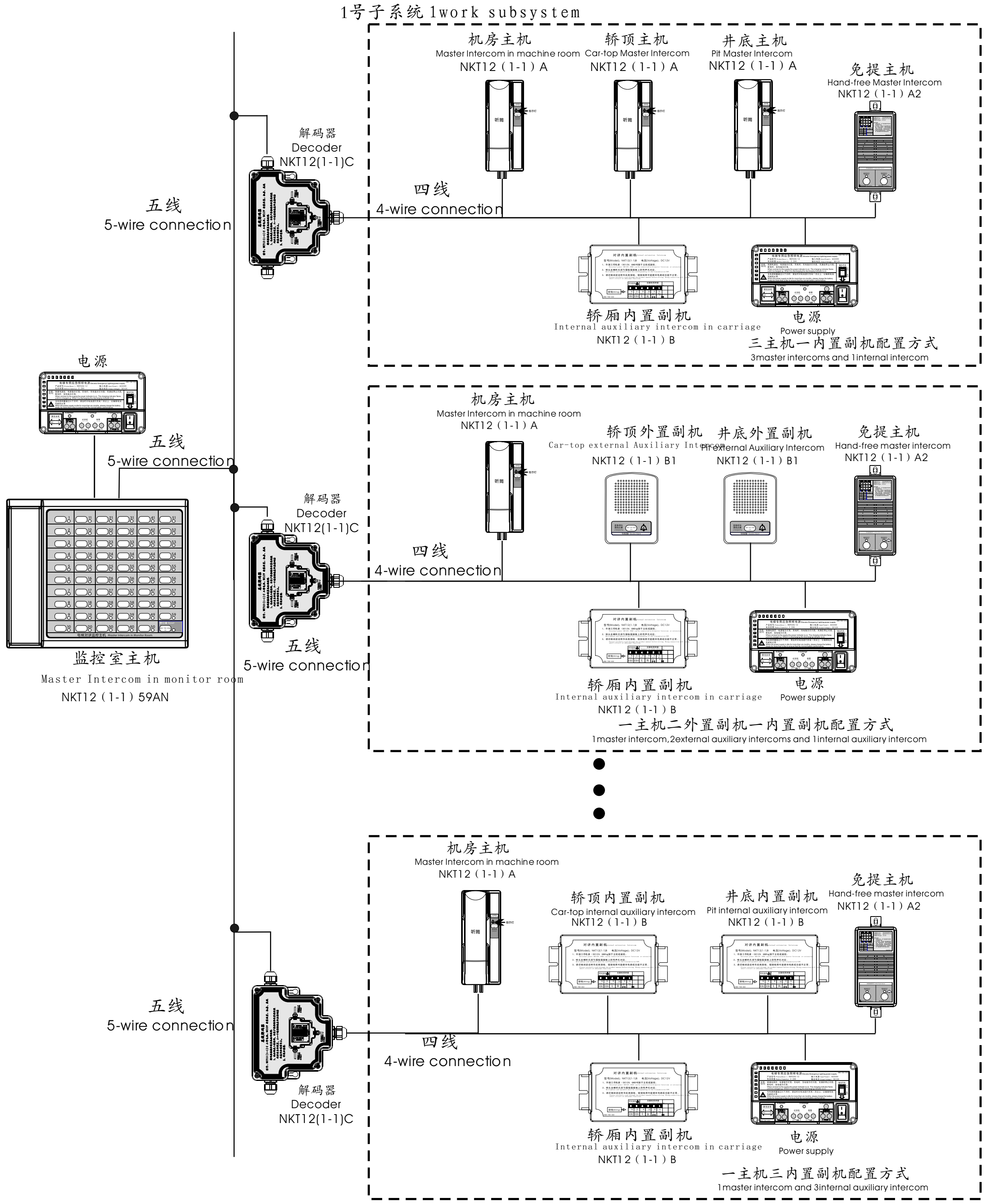


A.4.1.2 总线制对讲机典型接线示意图一：
Sketch for the typical Bus-organized Intercom(1)



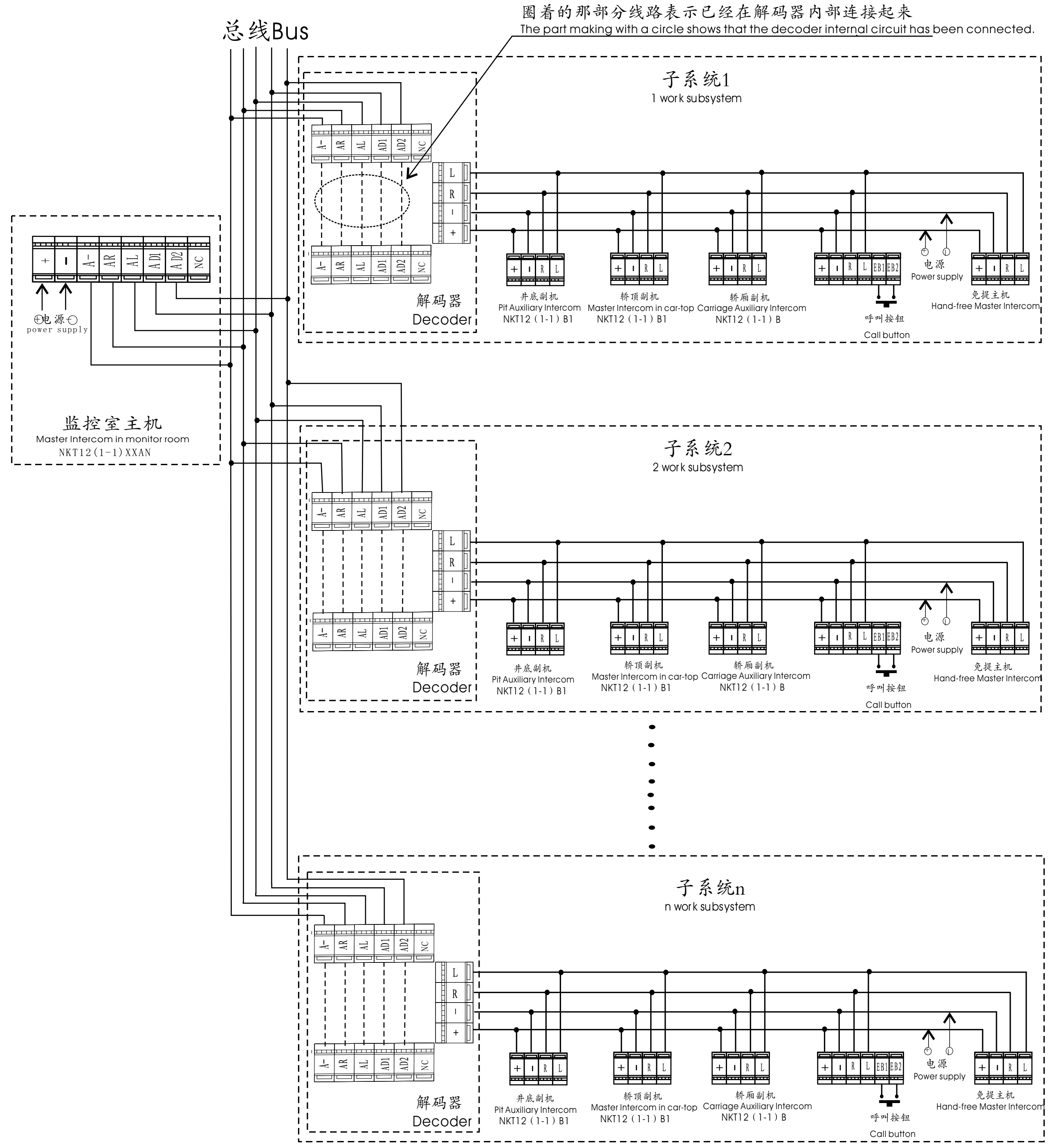
A.4.2.1 总线制典型布局示意图二（实物以供货为准），对照下页接线图更容易理解

A.4.2.1 Sketch for the typical layout of Bus-organized Intercom(2) (Objects are subject to the delivery goods) It's easier understanding contrasting to the wiring diagram on the next page.



A.4.2.2总线制对讲机典型接线示意图二：

Sketch for the typical Bus-organized Intercom(2)



A.4.2.3 当然，按照原理<u>接线图一</u>和<u>接线图二</u>结合起来<u>混合接线</u>也是可以的，图略。

A.4.2.3 Of course, connecting wires which mix the wiring diagram1 and wiring diagram 2 according to the theory is also acceptable. Omitting the diagram.

A.5工程布线及其拓扑结构（支持任何的总线结构）

A.5 The engineering wiring and topological structure.(Support all kinds of bus structure)

A.6布线电缆及其相关问题

A.6The wiring cable and normal problems

A.6.1总线制布线必须采用国标0.75mm^{2}铜芯电缆线

A.6.1The bus-organized wiring must use the copper cable with GB diameter 0.75mm^2

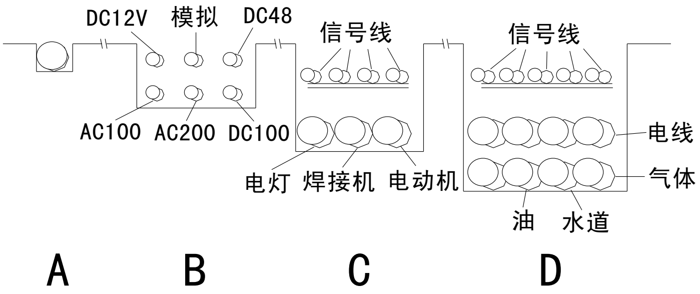
A.6.2布线时，动力线与信号线应该保持一定的距离，且尽量远离高压线，如表：

A.6.2 When wiring, power line and signal wire must keep distance, and be away from the high voltage wire as much as possible. See as the table:

动力线和信号线之间的最小距离 The minimum spacing between power line and signal wire	
动力线容量 Capicity of power line	与信号线之间的最小距离 Minimum spacing with the signal wire
125V 10A	30cm
250V 50A	45cm
440V 200A	60cm

穿线管槽穿线应避开大电流、动力线槽，以下示例。

The threading tube chase should avoid large current and dynamic through when wiring.See as follows.



穿线槽的种类

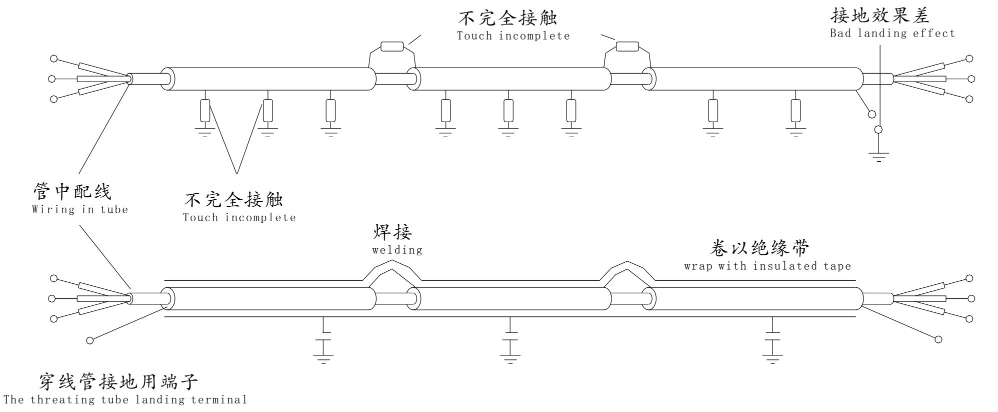
Kinds of threading tube chase

其中单槽A当然是最理想的；

Among these, certainly single groove A is optimal

导管接地参考:

Reference of the landing tube



安装工程结束后若干时间，管子头部氧化生锈，接近绝缘状态，虽然总线管的两端接地，但中间部分的管浮着。如果焊接不牢固，仍会产生噪声，造成难解其因的干扰。

Long time after installation, head of the tube oxidizes and rusts. The state closes to insulation. Although both two sides of the bus tube is grounded, but the tube in the middle part is floating. If wielding unstable, noise and hard disturbance will still be caused.

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Guarantee

本保证书各栏请详填
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产品名称 Name ：			产品型号 Model：
Customer Details 顾客详细资料	姓名 Name	中文名 Chinese Name：	英文名 English Name：
	住址Add：		邮政编码 Postal Code
	电话 Phone	座机Tel：	移动电话 Mobile：
保修期限：十八个月 Guarantee time: 18months		购买日期： 年 月 日 Purchasing Data: (Y) (M) (D)	

1.本产品在正常使用状况下，十八个月内免费维修。
Free maintain in eighteen months in condition of normal use.
2.保修期的起始日期以产品发票日期为准，维修时请出示发票。
The start data of guarantee are subject to the date of invoice. Please show your invoice when repairing.
3.在保修期间内，若有下列之情形恕不免费修理：
Within the warranty period, if there is any of the following circumstance, it will not be free repaired:
- 由于没有按说明书上要求使用而造成故障者。
  Breaking down because of not according to the instructions of specifications.
- 由于自行修理改装以致损坏者。
  Damaged due to self-modified.
- 由于天灾、跌、碰撞、不当电压所造成之故障者。
  Because of the natural disaster, fall, collision and breaking down by using the improper voltage.
- 外观因使用而自然污旧者。
  Appearance naturally become dirty and old by having used it.

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Our Company Maintenance still serve for you sincerely, though the product is out of the guarantee time or belongs to the charging product.

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Standard shall be object to the real product, if the appearance and colour subject to change.

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